

Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269



Scaled data based on original data using  
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions

Brand: NEO-RAY

Report Number: P920672

Luminaire Tested: DFN2DIP-TR2F0-040D030US935-FLLFLL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P920672  
REPORT IS A COMBINATION OF REPORTS P900235 AND P897145  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR2F0-040D030US935-FLLFLL  
Description: 2 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

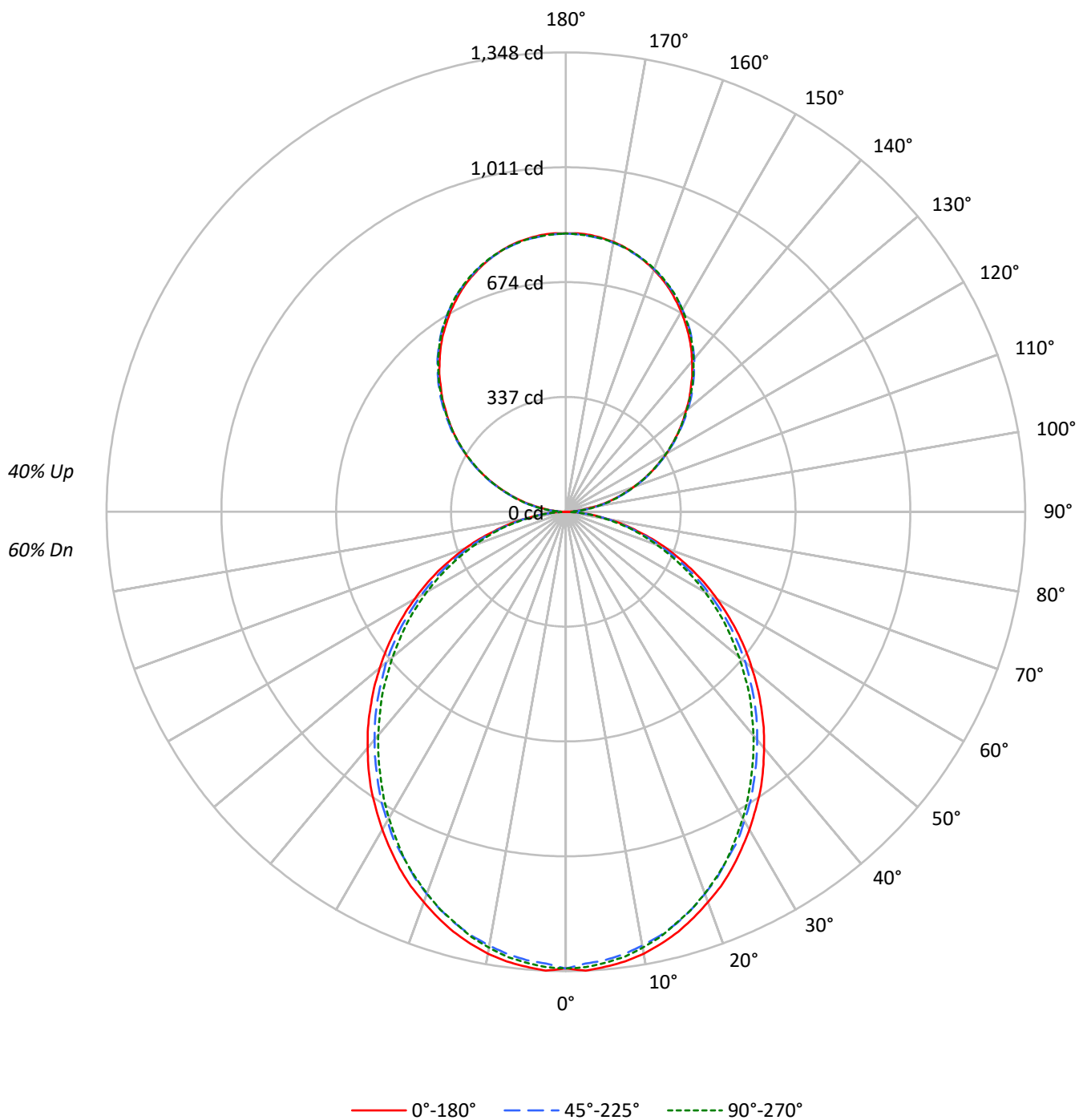
Lumens per Lamp: N/A  
Luminaire Lumens: 5695.4 lumens  
Efficiency: N/A  
Efficacy: 98.5 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 2.04' x L: 2.36' x H: 0.1')  
CIE Type: General Diffuse

Input Watts (W): 57.8  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9933  
Total Harmonic Distortion (THDi): 0.066  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

TEST NUMBER: P920672

CATALOG NUMBER: DFN2DIP-TR2F0-040D030US935-FLLFLL

### Luminous Intensity Polar Plot



TEST NUMBER: P920672

CATALOG NUMBER: DFN2DIP-TR2F0-040D030US935-FLLFLL

**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

|     |     |     |     |     |     |     |     |     |    |    |    |    |    |    |    |    |    |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|----|----|----|----|----|----|
| RF  | 20  |     |     |     | 20  |     |     |     | 20 |    |    |    | 20 |    |    |    | 20 |
| RC  | 80  |     |     |     | 70  |     |     |     | 50 |    |    |    | 30 |    |    |    | 10 |
| RW  | 70  | 50  | 30  | 10  | 70  | 50  | 30  | 10  | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 |
| RCR |     |     |     |     |     |     |     |     |    |    |    |    |    |    |    |    |    |
| 0   | 110 | 110 | 110 | 110 | 102 | 102 | 102 | 102 | 89 | 89 | 89 | 77 | 77 | 77 | 65 | 65 | 65 |
| 1   | 100 | 96  | 92  | 88  | 93  | 89  | 86  | 83  | 78 | 75 | 73 | 67 | 66 | 64 | 58 | 56 | 55 |
| 2   | 91  | 84  | 77  | 72  | 85  | 78  | 73  | 68  | 68 | 64 | 61 | 59 | 56 | 53 | 51 | 48 | 46 |
| 3   | 83  | 73  | 66  | 60  | 77  | 69  | 62  | 57  | 60 | 55 | 51 | 52 | 48 | 45 | 45 | 42 | 40 |
| 4   | 76  | 65  | 57  | 51  | 71  | 61  | 54  | 48  | 54 | 48 | 43 | 47 | 42 | 39 | 40 | 37 | 34 |
| 5   | 70  | 58  | 50  | 44  | 65  | 55  | 47  | 42  | 48 | 42 | 38 | 42 | 37 | 34 | 36 | 33 | 30 |
| 6   | 64  | 52  | 44  | 38  | 60  | 49  | 42  | 36  | 43 | 37 | 33 | 38 | 33 | 29 | 33 | 29 | 26 |
| 7   | 60  | 47  | 39  | 33  | 56  | 44  | 37  | 32  | 39 | 33 | 29 | 35 | 30 | 26 | 30 | 26 | 23 |
| 8   | 55  | 43  | 35  | 30  | 52  | 40  | 33  | 28  | 36 | 30 | 26 | 32 | 27 | 23 | 28 | 24 | 21 |
| 9   | 52  | 39  | 32  | 26  | 48  | 37  | 30  | 25  | 33 | 27 | 23 | 29 | 24 | 21 | 26 | 22 | 19 |
| 10  | 48  | 36  | 29  | 24  | 45  | 34  | 27  | 23  | 30 | 25 | 21 | 27 | 22 | 19 | 24 | 20 | 17 |

**AVERAGE LUMINANCE (cd/sqm):**

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 2989 | 2989 | 2989 |
| 5°  | 2989 | 2941 | 2962 |
| 10° | 2961 | 2894 | 2917 |
| 15° | 2913 | 2840 | 2849 |
| 20° | 2849 | 2767 | 2780 |
| 25° | 2786 | 2682 | 2701 |
| 30° | 2708 | 2601 | 2601 |
| 35° | 2634 | 2508 | 2497 |
| 40° | 2544 | 2413 | 2397 |
| 45° | 2453 | 2317 | 2294 |
| 50° | 2354 | 2217 | 2176 |
| 55° | 2250 | 2101 | 2066 |
| 60° | 2131 | 1965 | 1940 |
| 65° | 2002 | 1822 | 1792 |
| 70° | 1837 | 1648 | 1630 |
| 75° | 1611 | 1440 | 1474 |
| 80° | 1335 | 1174 | 1193 |
| 85° | 910  | 741  | 740  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2453 cd/sqm

TEST NUMBER: P920672

CATALOG NUMBER: DFN2DIP-TR2F0-040D030US935-FLLFLL

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 126.1  | 2.2       |
| 10°-20°   | 354.9  | 6.2       |
| 20°-30°   | 521.5  | 9.2       |
| 30°-40°   | 605.7  | 10.6      |
| 40°-50°   | 605.0  | 10.6      |
| 50°-60°   | 527.5  | 9.3       |
| 60°-70°   | 389.9  | 6.8       |
| 70°-80°   | 220.6  | 3.9       |
| 80°-90°   | 60.5   | 1.1       |
| 90°-100°  | 50.6   | 0.9       |
| 100°-110° | 160.6  | 2.8       |
| 110°-120° | 274.9  | 4.8       |
| 120°-130° | 361.5  | 6.3       |
| 130°-140° | 405.7  | 7.1       |
| 140°-150° | 397.9  | 7.0       |
| 150°-160° | 333.8  | 5.9       |
| 160°-170° | 221.3  | 3.9       |
| 170°-180° | 77.4   | 1.4       |
| 0°-30°    | 1002.5 | 17.6      |
| 0°-40°    | 1608.3 | 28.2      |
| 0°-60°    | 2740.7 | 48.1      |
| 0°-90°    | 3411.8 | 59.9      |
| 90°-120°  | 486.0  | 8.5       |
| 90°-150°  | 1651.1 | 29.0      |
| 90°-180°  | 2284.0 | 40.1      |
| 0°-180°   | 5695.4 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 1340 | 1340  | 1340 | 1340  | 1340 |      |
| 5°   | 1340 | 1335  | 1321 | 1331  | 1329 | 127  |
| 15°  | 1276 | 1268  | 1251 | 1256  | 1250 | 359  |
| 25°  | 1154 | 1144  | 1122 | 1125  | 1122 | 531  |
| 35°  | 996  | 983   | 963  | 955   | 948  | 622  |
| 45°  | 810  | 802   | 782  | 768   | 763  | 626  |
| 55°  | 614  | 606   | 590  | 575   | 568  | 548  |
| 65°  | 414  | 406   | 393  | 381   | 375  | 409  |
| 75°  | 216  | 214   | 207  | 200   | 202  | 231  |
| 85°  | 53   | 52    | 50   | 46    | 45   | 59   |
| 90°  | 1    | 9     | 24   | 23    | 23   | 5    |
| 95°  | 36   | 43    | 44   | 44    | 43   | 40   |
| 105° | 148  | 150   | 152  | 153   | 153  | 156  |
| 115° | 276  | 280   | 278  | 278   | 276  | 273  |
| 125° | 401  | 407   | 405  | 403   | 402  | 358  |
| 135° | 519  | 526   | 528  | 527   | 525  | 401  |
| 145° | 630  | 635   | 639  | 640   | 637  | 394  |
| 155° | 720  | 722   | 724  | 728   | 726  | 332  |
| 165° | 784  | 783   | 783  | 788   | 784  | 221  |
| 175° | 816  | 814   | 812  | 817   | 813  | 77   |
| 180° | 817  | 817   | 817  | 817   | 817  |      |

TEST NUMBER: P920672

CATALOG NUMBER: DFN2DIP-TR2F0-040D030US935-FLLFLL

**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 1340.1 | 1340.1 | 1340.1 | 1340.1 | 1340.1 |
| 2.5°   | 1347.9 | 1341.4 | 1327.2 | 1340.1 | 1337.6 |
| 5°     | 1340.1 | 1335.0 | 1320.8 | 1331.0 | 1328.6 |
| 7.5°   | 1331.0 | 1323.4 | 1309.1 | 1319.6 | 1317.0 |
| 10°    | 1317.0 | 1307.9 | 1292.5 | 1302.8 | 1298.9 |
| 12.5°  | 1297.5 | 1289.9 | 1274.4 | 1280.9 | 1278.2 |
| 15°    | 1275.7 | 1268.0 | 1251.2 | 1256.4 | 1250.0 |
| 17.5°  | 1248.6 | 1241.0 | 1224.2 | 1230.5 | 1224.2 |
| 20°    | 1218.9 | 1211.3 | 1193.3 | 1197.0 | 1192.1 |
| 22.5°  | 1189.4 | 1177.8 | 1161.0 | 1161.0 | 1158.4 |
| 25°    | 1154.5 | 1144.3 | 1122.4 | 1124.9 | 1122.4 |
| 27.5°  | 1115.9 | 1106.8 | 1090.2 | 1086.3 | 1079.9 |
| 30°    | 1077.3 | 1066.9 | 1047.7 | 1043.8 | 1038.6 |
| 32.5°  | 1036.0 | 1028.4 | 1007.7 | 1000.0 | 994.7  |
| 35°    | 996.1  | 983.3  | 962.6  | 954.8  | 948.4  |
| 37.5°  | 951.0  | 939.3  | 918.7  | 909.7  | 903.3  |
| 40°    | 904.7  | 894.2  | 873.6  | 862.1  | 857.0  |
| 42.5°  | 859.5  | 849.1  | 828.6  | 815.6  | 808.0  |
| 45°    | 810.5  | 801.6  | 782.1  | 768.1  | 762.8  |
| 47.5°  | 762.8  | 753.8  | 733.2  | 719.0  | 711.4  |
| 50°    | 712.6  | 706.1  | 688.1  | 670.0  | 663.6  |
| 52.5°  | 663.6  | 654.6  | 637.9  | 623.7  | 614.7  |
| 55°    | 613.5  | 605.6  | 590.2  | 574.7  | 568.3  |
| 57.5°  | 563.1  | 556.7  | 539.8  | 524.4  | 519.3  |
| 60°    | 512.8  | 507.7  | 489.7  | 475.5  | 471.7  |
| 62.5°  | 463.9  | 454.9  | 442.0  | 429.1  | 424.0  |
| 65°    | 413.7  | 405.9  | 393.0  | 381.4  | 375.1  |
| 67.5°  | 362.1  | 355.6  | 344.1  | 335.1  | 329.9  |
| 70°    | 314.4  | 309.3  | 297.6  | 288.6  | 283.5  |
| 72.5°  | 265.5  | 260.3  | 253.9  | 244.9  | 241.0  |
| 75°    | 216.5  | 214.0  | 207.4  | 199.8  | 202.3  |
| 77.5°  | 172.6  | 167.5  | 164.9  | 161.0  | 157.2  |
| 80°    | 128.9  | 127.5  | 124.9  | 121.1  | 118.6  |
| 82.5°  | 87.6   | 87.6   | 86.4   | 81.2   | 81.2   |
| 85°    | 52.8   | 51.6   | 50.3   | 46.3   | 45.1   |
| 87.5°  | 23.2   | 20.7   | 18.1   | 14.2   | 12.8   |
| 90°    | 0.8    | 8.9    | 24.1   | 22.6   | 23.4   |
| 92.5°  | 15.2   | 20.7   | 21.4   | 22.1   | 22.1   |
| 95°    | 36.0   | 42.9   | 44.1   | 44.1   | 42.9   |
| 97.5°  | 59.8   | 66.2   | 69.0   | 69.0   | 69.0   |
| 100°   | 87.4   | 93.1   | 95.1   | 95.1   | 94.4   |
| 102.5° | 116.5  | 120.7  | 123.4  | 124.2  | 123.4  |
| 105°   | 148.3  | 150.2  | 151.7  | 152.9  | 152.9  |
| 107.5° | 179.8  | 182.7  | 182.7  | 183.2  | 179.8  |
| 110°   | 210.3  | 214.3  | 214.3  | 214.3  | 212.3  |



TEST NUMBER: P920672

CATALOG NUMBER: DFN2DIP-TR2F0-040D030US935-FLLFLL

**CANDELA DISTRIBUTION (continued):**

|        | 0°    | 22.5° | 45°   | 67.5° | 90°   |
|--------|-------|-------|-------|-------|-------|
| 112.5° | 243.3 | 247.5 | 246.8 | 244.8 | 243.3 |
| 115°   | 275.9 | 279.7 | 278.5 | 277.8 | 275.9 |
| 117.5° | 308.1 | 313.5 | 310.0 | 308.1 | 306.1 |
| 120°   | 340.6 | 346.0 | 340.6 | 340.6 | 338.4 |
| 122.5° | 370.1 | 377.0 | 373.6 | 371.6 | 370.1 |
| 125°   | 401.2 | 407.3 | 405.4 | 403.1 | 402.4 |
| 127.5° | 431.4 | 439.1 | 436.4 | 433.4 | 431.4 |
| 130°   | 459.8 | 468.6 | 467.4 | 466.0 | 463.2 |
| 132.5° | 491.5 | 498.4 | 498.9 | 495.5 | 493.5 |
| 135°   | 518.9 | 526.5 | 528.0 | 527.3 | 525.3 |
| 137.5° | 549.4 | 555.6 | 556.8 | 556.4 | 553.4 |
| 140°   | 576.3 | 582.5 | 585.9 | 585.9 | 583.2 |
| 142.5° | 603.9 | 610.0 | 612.0 | 612.8 | 610.0 |
| 145°   | 630.0 | 634.9 | 638.9 | 639.5 | 636.9 |
| 147.5° | 653.4 | 659.5 | 662.5 | 663.7 | 661.0 |
| 150°   | 677.5 | 681.7 | 684.4 | 686.6 | 684.4 |
| 152.5° | 699.0 | 703.1 | 706.5 | 709.3 | 706.5 |
| 155°   | 720.4 | 722.3 | 724.5 | 728.0 | 725.8 |
| 157.5° | 738.8 | 740.3 | 741.6 | 746.5 | 743.0 |
| 160°   | 755.4 | 756.8 | 757.6 | 761.7 | 758.8 |
| 162.5° | 770.6 | 770.6 | 771.4 | 776.0 | 772.6 |
| 165°   | 783.7 | 782.9 | 782.9 | 787.8 | 784.4 |
| 167.5° | 795.5 | 793.2 | 793.2 | 798.1 | 794.7 |
| 170°   | 804.3 | 802.4 | 801.7 | 806.6 | 802.4 |
| 172.5° | 810.5 | 808.6 | 807.8 | 812.7 | 808.6 |
| 175°   | 815.5 | 813.5 | 812.0 | 816.9 | 812.7 |
| 177.5° | 818.1 | 816.1 | 814.7 | 818.9 | 814.7 |
| 180°   | 816.9 | 816.9 | 816.9 | 816.9 | 816.9 |

TEST NUMBER: P920672

CATALOG NUMBER: DFN2DIP-TR2F0-040D030US935-FLLFL

**CIE UGR TABLE:**

| Reflectances:   |      |                  |       |       |       |       |                |       |       |       |       |
|-----------------|------|------------------|-------|-------|-------|-------|----------------|-------|-------|-------|-------|
| Ceiling         |      | 0.7              | 0.7   | 0.5   | 0.5   | 0.3   | 0.7            | 0.7   | 0.5   | 0.5   | 0.3   |
| Wall            |      | 0.5              | 0.3   | 0.5   | 0.3   | 0.3   | 0.5            | 0.3   | 0.5   | 0.3   | 0.3   |
| Reference plane |      | 0.2              | 0.2   | 0.2   | 0.2   | 0.2   | 0.2            | 0.2   | 0.2   | 0.2   | 0.2   |
| Room dimensions |      | Viewed crosswise |       |       |       |       | Viewed endwise |       |       |       |       |
| X=2H            | Y=2H | 11.81            | 12.77 | 12.68 | 13.66 | 14.78 | 11.39          | 12.35 | 12.26 | 13.24 | 14.36 |
|                 | 3H   | 13.46            | 14.32 | 14.34 | 15.22 | 16.36 | 13.00          | 13.86 | 13.88 | 14.75 | 15.90 |
|                 | 4H   | 14.03            | 14.85 | 14.93 | 15.75 | 16.91 | 13.57          | 14.39 | 14.47 | 15.29 | 16.45 |
|                 | 6H   | 14.42            | 15.17 | 15.33 | 16.08 | 17.25 | 13.96          | 14.71 | 14.87 | 15.62 | 16.79 |
|                 | 8H   | 14.52            | 15.23 | 15.43 | 16.16 | 17.33 | 14.06          | 14.77 | 14.97 | 15.70 | 16.87 |
|                 | 12H  | 14.56            | 15.24 | 15.48 | 16.16 | 17.36 | 14.10          | 14.78 | 15.02 | 15.70 | 16.90 |
| 4H              | 2H   | 12.28            | 13.09 | 13.18 | 13.99 | 15.15 | 11.94          | 12.75 | 12.84 | 13.65 | 14.81 |
|                 | 3H   | 14.12            | 14.80 | 15.04 | 15.74 | 16.91 | 13.74          | 14.42 | 14.65 | 15.35 | 16.53 |
|                 | 4H   | 14.82            | 15.44 | 15.75 | 16.37 | 17.57 | 14.43          | 15.05 | 15.35 | 15.98 | 17.18 |
|                 | 6H   | 15.32            | 15.86 | 16.26 | 16.81 | 18.01 | 14.93          | 15.46 | 15.86 | 16.42 | 17.61 |
|                 | 8H   | 15.46            | 15.96 | 16.40 | 16.91 | 18.12 | 15.07          | 15.56 | 16.00 | 16.51 | 17.73 |
|                 | 12H  | 15.53            | 15.98 | 16.49 | 16.95 | 18.17 | 15.12          | 15.57 | 16.08 | 16.54 | 17.76 |
| 8H              | 4H   | 15.02            | 15.52 | 15.96 | 16.47 | 17.68 | 14.67          | 15.17 | 15.60 | 16.11 | 17.33 |
|                 | 6H   | 15.63            | 16.04 | 16.59 | 17.03 | 18.24 | 15.27          | 15.69 | 16.24 | 16.68 | 17.89 |
|                 | 8H   | 15.83            | 16.20 | 16.81 | 17.18 | 18.41 | 15.48          | 15.84 | 16.45 | 16.82 | 18.05 |
|                 | 12H  | 15.95            | 16.27 | 16.93 | 17.25 | 18.53 | 15.58          | 15.90 | 16.56 | 16.88 | 18.16 |
| 12H             | 4H   | 15.01            | 15.46 | 15.96 | 16.42 | 17.64 | 14.66          | 15.11 | 15.62 | 16.08 | 17.30 |
|                 | 6H   | 15.65            | 16.02 | 16.63 | 17.00 | 18.23 | 15.31          | 15.68 | 16.28 | 16.66 | 17.89 |
|                 | 8H   | 15.88            | 16.20 | 16.86 | 17.18 | 18.45 | 15.53          | 15.86 | 16.51 | 16.83 | 18.11 |